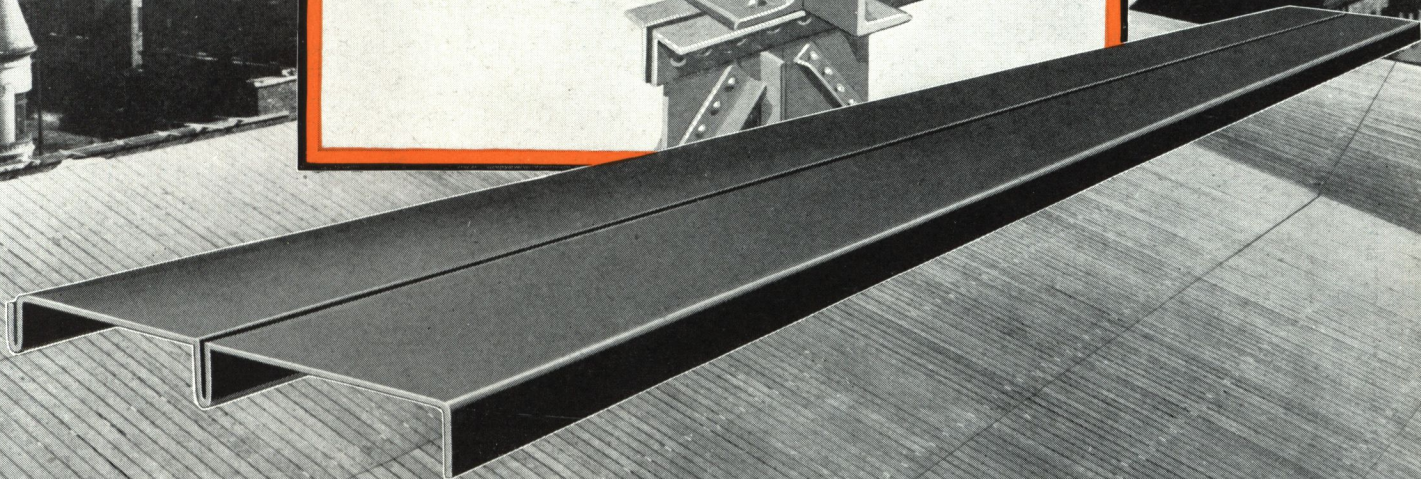
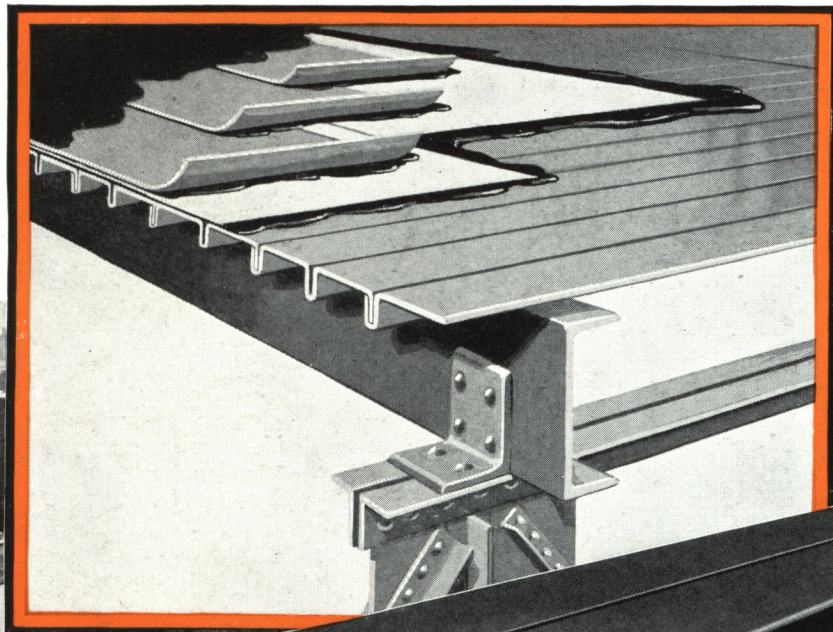


MAHON

STEEL ROOF DECK



THE R. C. MAHON COMPANY
DETROIT, MICHIGAN



THE R. C. MAHON COMPANY

Manufacturers of the Mahon Steel Roof Deck

DETROIT, MICH.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

Products

MAHON STEEL ROOF DECK.
For Mahon Permanent Steel Floor Forms, Kalamein and Tin Clad Doors, Rolling Steel Doors and Cast Iron Roof Sumps, see page numbers in Manufacturers' Index.



Mahon Steel Roof Deck for Every Type of Roof

The Mahon Steel Roof Deck, details of which are set forth in these pages, offers a roof suited to practically any type of building calling for either flat, pitched or arched roof construction. Mahon Deck Plates can be furnished curved to fit arched roofs—minimum radius 36 ft.

Architects and engineers will find that the Mahon Steel Roof Deck greatly simplifies roof design, and builders will appreciate the ease with which the roof can be applied. It has advantages in structural simplicity which permit rapid erection and consequently lower the cost of construction.

The laying of a Mahon Steel Roof Deck is one of the simplest operations that you have ever witnessed.



Installing Mahon Steel Roof Deck on the Latrobe Electric Steel Co. Plant, Latrobe, Pa.

The work, due to the ingenious design of parts, can proceed swiftly and is done entirely from the upper side of the roof. Every plate of a Mahon Steel Roof Deck interlocks with the preceding unit. There are no end fittings—the ends being lapped one over the other. All lap joints occur directly over purlins. All clips are installed from the top as the plates are put in place.

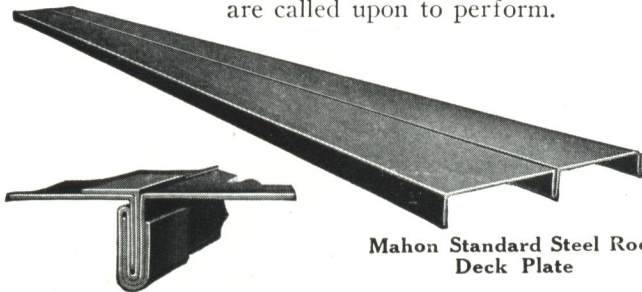
The Mahon Steel Roof Deck consists of one standard roof plate and three standard clips by which the plates are fastened together and to the supporting framework.

Material

Mahon Steel Roof Deck is furnished in 18 and 20 gauge, in special, tight-coated galvanized copper bearing steel and requires no painting or maintenance whatsoever. It can also be furnished in copper bearing steel painted if desired. Mahon has established 20 gauge as a minimum for roof deck plates as a result of exhaustive tests which indicate this as the lightest material that can be safely and economically utilized. Weight impacts would be likely to seriously affect roofs of lighter gauge.

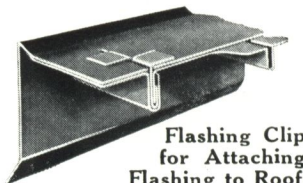
Standard Assembling Clips

The laying of a Mahon Steel Roof Deck requires only the installation of the steel clips by which the plates are fastened together as they are assembled, and by which they are fastened to the supporting structural steel. Mahon clips have been designed primarily for simplicity, and they have in every instance a strength more than adequate for the work they are called upon to perform.

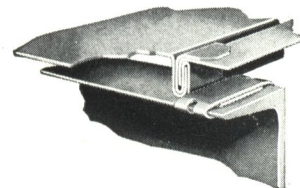


Mahon Standard Steel Roof Deck Plate

Intermediate Clip Locking Roof Deck Plates Together Midway Between Purlins

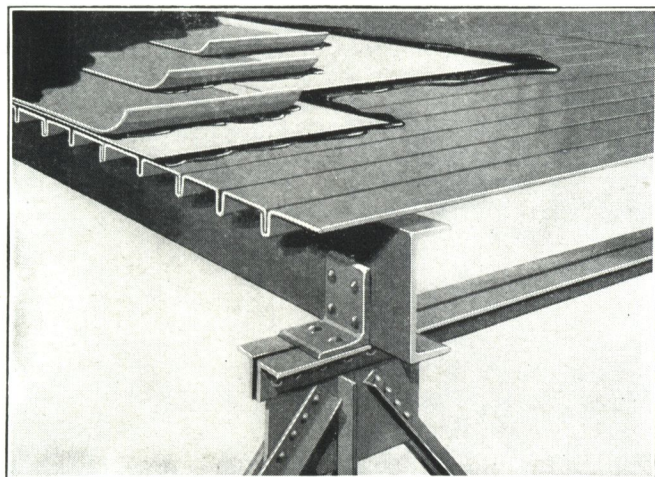


Flashing Clip for Attaching Flashing to Roof Deck Plates



Beam or Purlin Clip for Attaching Roof Deck Plates to Beam or Channel Purlins

There is not in the design of the Mahon Steel Roof Deck any part which can work up, become loose or in any way act to rupture the insulation or roofing material.



Cross Section of Mahon Steel Roof Deck Showing Application of Insulation and Waterproofing

An Integral Unit Roof

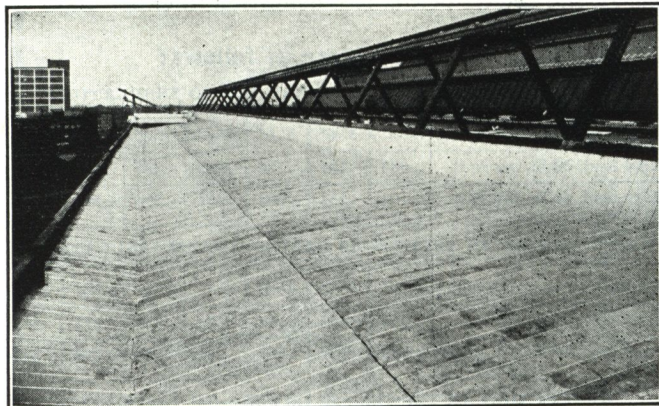
The Mahon Steel Roof Deck when installed functions as a single steel plate, the separate units becoming an integral part of one interlocking whole when assembled.

A feature of the Mahon Steel Roof Deck which makes for extra rigidity and strength is the location of all end lap joints directly over purlins. The minimum end lap is 2 in. No unsightly laps or joints are visible from the underside of the Mahon Deck.

All plates in the Mahon Deck lay 12 in. wide when installed, ribs 1½ in. deep are 6 in. on centers. Every second rib where the plates interlock provides three thicknesses of metal. Each deck plate is locked with special clips to the adjoining plate at intervals of approximately 2 ft. 0 in. between purlins to prevent deflection of individual plates due to localized loading. This feature eliminates the possibility of loosening the bond between insulation or roofing material applied to the deck.

Universal Application

The unusual lightness of the Mahon Steel Roof Deck fits it for use on buildings of every type, including buildings with unusually long spans, such as auditoriums, gymnasiums, and the like. Designers will also find this type of roof deck admirably suited to factories,



Mahon Steel Roof Deck Installed on the Hupmobile Plant, Detroit, Mich.

Note the deck-formed saddles adjacent to the parapet wall

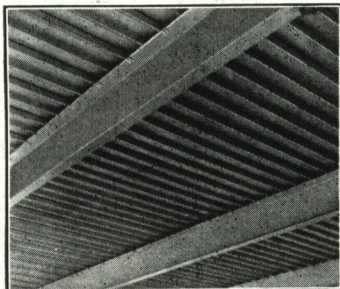
office buildings, hotels, apartments, hospitals, and schools.

The fact that a Mahon Steel Roof Deck can be insulated to exactly the degree required for the type of occupancy makes it an ideal construction for any type of building.

Expansion and Contraction

Expansion and contraction difficulties have been entirely obviated in the design of the Mahon Steel Roof Deck. Note in the center rib an ample allowance for lateral expansion and contraction, and also that longitudinal expansion and contraction of the plate is provided for in the lap joints.

These factors mean that bulging positively cannot occur in a Mahon Steel Roof Deck, and that no injury to insulation or composition roofing can occur through expansion or contraction.



Underside of Mahon Steel Roof Deck

Note the clean, even appearance and the absence of end joints

Monitor Flashings

The projecting ribs on the plates of the Mahon Steel Roof Deck can be cut and the sheet turned up to make flashings under monitor windows, curbs, etc.

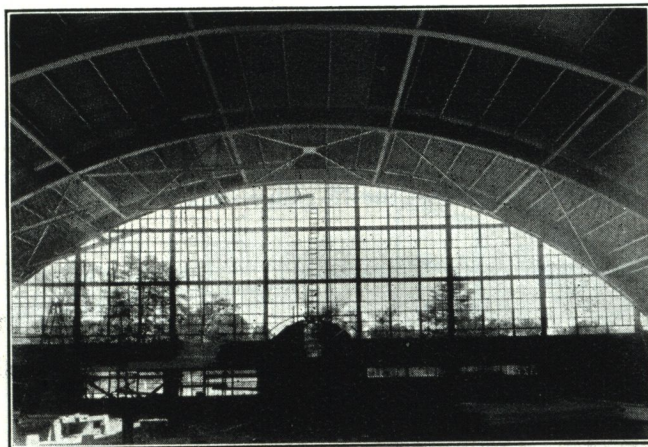
Saddles

On many types of buildings, where Mahon Steel Roof Deck is employed, built-up saddles are unnecessary. Saddles may be created by warping the roof deck (as illustrated in detail No. 17). This is accomplished by setting the purlins in the drainage section at the desired angle to produce ridges and valleys—usually an angle of ¼ in. to the foot is sufficient. No extra roof deck plates are required and it does not involve cutting or fitting. Saddles for either sloping or vertical face sawtooth buildings may be economically built from Mahon Steel Roof Deck plates cut to fit (as illustrated in details Nos. 18, 19, 20). This system of roof drainage has worked out very successfully on a number of installations where it was adaptable. To meet conditions where the aforementioned methods are not practical, saddles may be built from any material of a permanent nature—in which case we recommend the application first of a layer of asphalt or tarred felt on the steel deck proper, the same to be cemented to the deck with asphalt or pitch. This should be mopped on top with asphalt or pitch, over which the saddle fill may be installed.

Caution—We do not recommend the use of cinders for saddle fill. However, if cinders are to be used, under no consideration should this material be laid next to the steel deck. The sulphuric content of cinders is detrimental to steel, and for the protection of the deck, where cinders are to be used, we would recommend that at least two plies of roofing felt be laid with pitch or asphalt over areas of the deck to be covered with cinders.

Insulation

The Mahon Steel Roof Deck is a complete structural unit, and requires no insulation for stiffness or rigidity—these factors being amply provided for in the deck itself. In the case of unheated structures such as loading docks, warehouses and the like, insulation is not necessary. In buildings that must be heated or where condensation is a problem we recommend the use of insulation of any approved type—amount of insulation will be governed by the type of occupancy.



Mahon Steel Roof Deck Installed on the Tennis Arena at the Brookline Country Club, Brookline, Mass.

Composition Roofing

Any standard composition roofing can be used over the Mahon Steel Roof Deck. Asphalt roofing may be preferable from a standpoint of weight. Sheets should

be mopped solid similar to roof construction over concrete.

Fire Safety

No matter what type of occupancy a building is designed for, building codes in centers of population demand fire safety. Mahon Steel Roof Deck provides the utmost in fire safe roof construction, and will obtain for the owner a low insurance rate.

Specification for Mahon Steel Roof Deck

(A) Work Included—

All roof surfaces shown on plans as steel deck.

(B) General—

Steel Deck shall be as manufactured by THE R. C. MAHON COMPANY, 8650 Mount Elliot Avenue, Detroit, Mich., or equivalent, meeting fully this manufacturer's standard of quality.

(C) Materials—

(C1) Deck Plates—

(C1a) Deck plates shall be of tight-coated, galvanized copper bearing steel.

(C1b) Deck plates shall not exceed 12 in. in width reinforced with webs or ribs not less than 1½ in. deep spaced not to exceed 6 in. on centers, so constructed as to allow for expansion and contraction.

(C1c) Minimum gauge of steel for plates shall be 20 gauge for spans up to and including 7 ft., and 18 gauge for spans over 7 ft. up to and including 8 ft.

(C1d) Deck plates shall be capable of withstanding a distributed live load of 40 lb. per sq. ft. without permanent deflection on the above maximum spans.

(C2) Attachment Clips—

Furnish steel clips adapted to permanent attachment of plate ribs to each roof purlin spaced 12 in. on centers. Furnish interlocking clips for securing adjoining deck plates together midway between purlins.

(D) Erection—

All end laps of deck plates shall be made directly over roof purlins, with a minimum overlap of 2 in.

Deck plates shall be secured to each purlin every 12 in. on centers by steel clips fastened to the deck ribs.

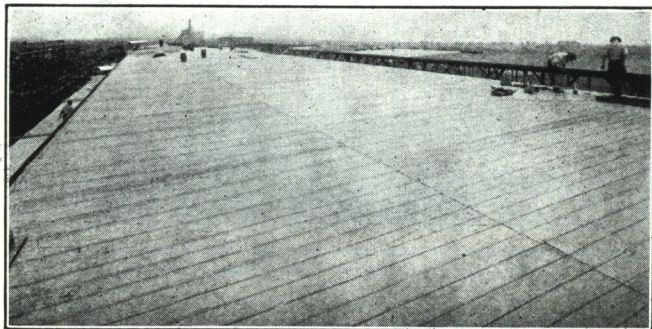
Each deck plate shall be secured to the adjoining plates by interlocking clips set at intervals of approximately 2 ft. 0 in. between purlins.

Note: These interlocking clips create lateral continuity and prevent one sheet from deflecting below the level of those adjoining.

Engineering Data

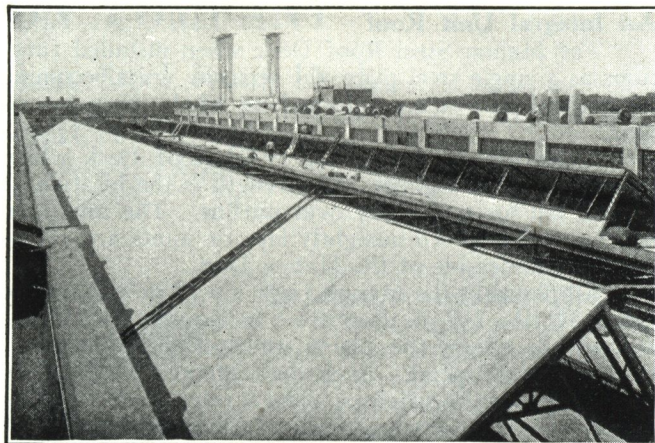
Light Weight—

As indicated before, the weight of Mahon Steel Roof Deck is such that it permits considerable economies in construction. The Mahon 20 gauge deck weighs 2.5 lb. per sq. ft. and the 18 gauge deck weighs 3.25 lb.



300,000 Sq. Ft. of Mahon Steel Roof Deck Are Utilized in This Building

Millions of square feet are now in use on various types of buildings



Mahon Steel Roof Deck Installed at the Durant Motor Plant, Lansing, Mich.

per sq. ft. The total weight of roof will depend on the type and amount of insulation and the type of roofing material used.

Deflection—

Load tests for deflection carried out by the Perry Testing Laboratories, Detroit, Mich., on the Mahon Steel Roof Deck with live loads of 30 and 40 lb. per sq. ft. showed no permanent deflection in either 18 or 20 gauge deck.

Results of these tests are as follows:

DEFLECTION IN INCHES—18 GAUGE—NO INSULATION

Purlin spacing.....	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"
Live load, 30 lb. per sq.ft..	.083	.105	.156	.232	.325	.431	.554
Live load, 40 lb. per sq.ft..	.104	.134	.202	.354	.398	.573	.732

DEFLECTION IN INCHES—18 GAUGE—1 INCH INSULATION

Purlin spacing.....	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	7'-6"	8'-0"
Live load, 30 lb. per sq.ft..	.061	.095	.125	.181	.235	.271	.354
Live load, 40 lb. per sq.ft..	.088	.129	.162	.237	.317	.392	.512

DEFLECTION IN INCHES—20 GAUGE—NO INSULATION

Purlin spacing.....	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	.....	.....
Live load, 30 lb. per sq.ft..	.098	.115	.167	.251	.338	.....	.....
Live load, 40 lb. per sq.ft..	.112	.144	.220	.320	.447	.....	.....

DEFLECTION IN INCHES—20 GAUGE—1 INCH INSULATION

Purlin spacing.....	5'-0"	5'-6"	6'-0"	6'-6"	7'-0"	.....	.....
Live load, 30 lb. per sq.ft..	.061	.088	.143	.213	.229	.....	.....
Live load, 40 lb. per sq.ft..	.079	.124	.192	.270	.338	.....	.....

The method used in making these tests is clearly illustrated in the line diagram. All deflection readings were taken at "C" midway between purlins "A"-"B." Readings were taken at each rib and a mean deflection established.

Purlin "A" in the diagram is movable to test deflection at various purlin spacings.

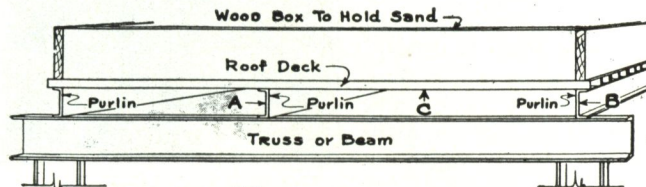


Diagram Illustrating Method of Testing Mahon Steel Roof Deck for Deflection

Standard Length Plates

Mahon Steel Roof Deck is rolled from special tight-coated, galvanized copper bearing steel sheets and can be furnished in either 18 or 20 gauge in any length up to 12 ft. 4 in.

Standard plates are carried in stock for immediate shipment in 20 gauge, in lengths of 6 ft. 2 in., 7 ft. 2 in., 8 ft. 4 in., 10 ft. 4 in., 11 ft. 6 in. and 12 ft. 4 in.

Standard 18 gauge plates are carried in stock in lengths of 8 ft. 2 in. only.

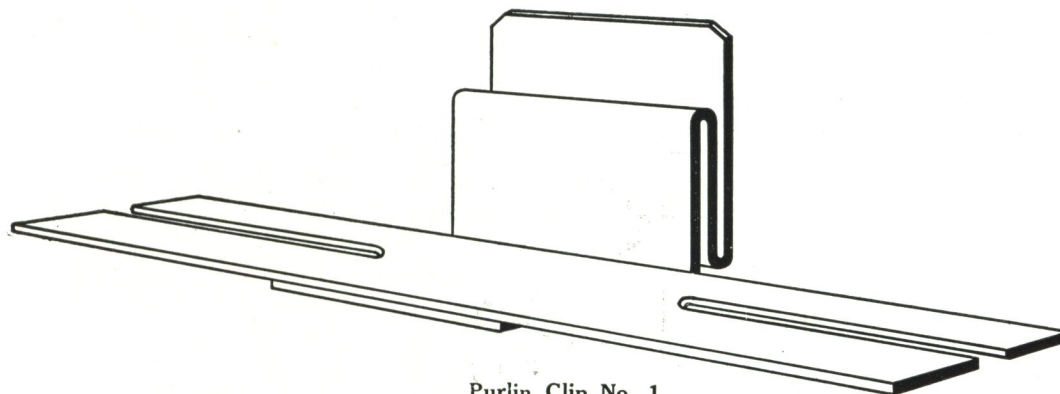
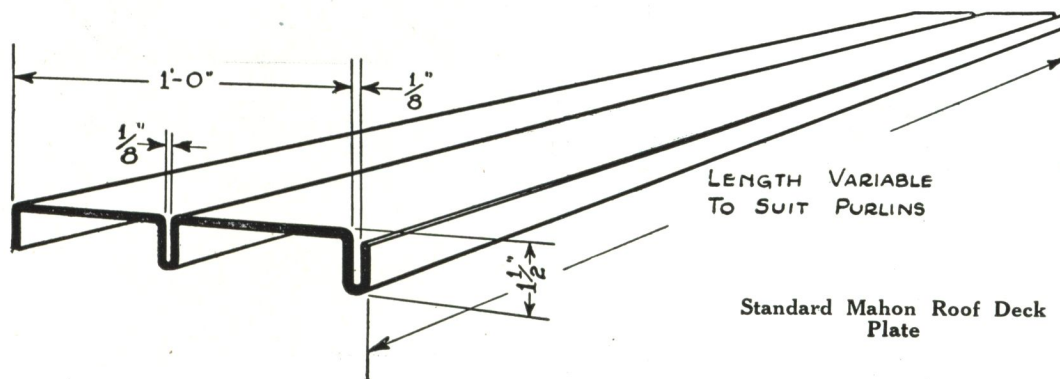
Purlin Spacing

The 20 gauge deck plates should not be used for purlin spacings exceeding 7 ft.

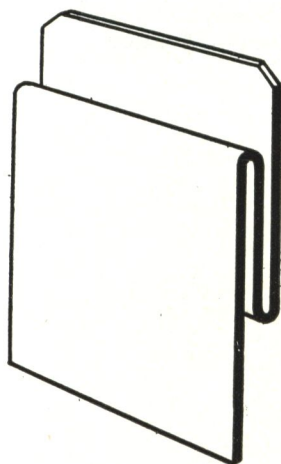
We recommend that the maximum purlin spacing for 18 gauge deck plates be limited to 8 ft.

STANDARD DECK PLATES RECOMMENDED FOR VARIOUS PURLIN SPACING

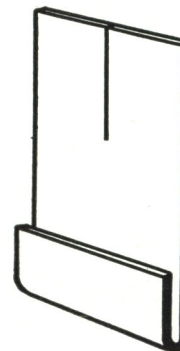
Purlin spacing to 4'-0"	Plate lengths
4'-0" to 5'-0"	8'-2" or 12'-4"
5'-0" to 6'-0"	5'-2" or 10'-4"
6'-0" to 7'-0"	6'-2" or 11'-6" or 12'-4"
7'-0" to 8'-0"	7'-2" or 8'-4"



Purlin Clip No. 1
For attaching roof neck plates to
I-beam or channel purlins



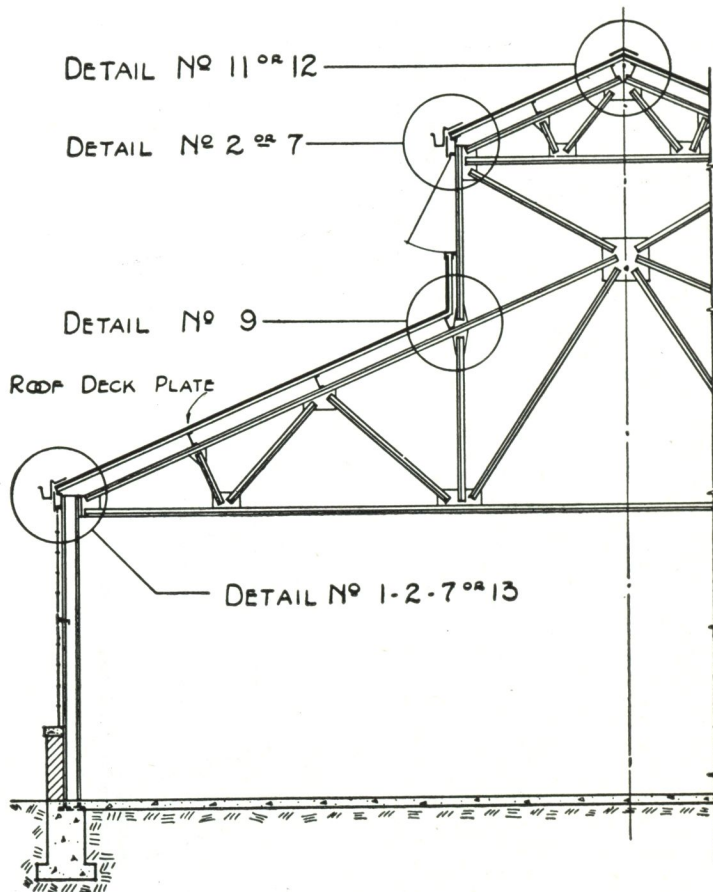
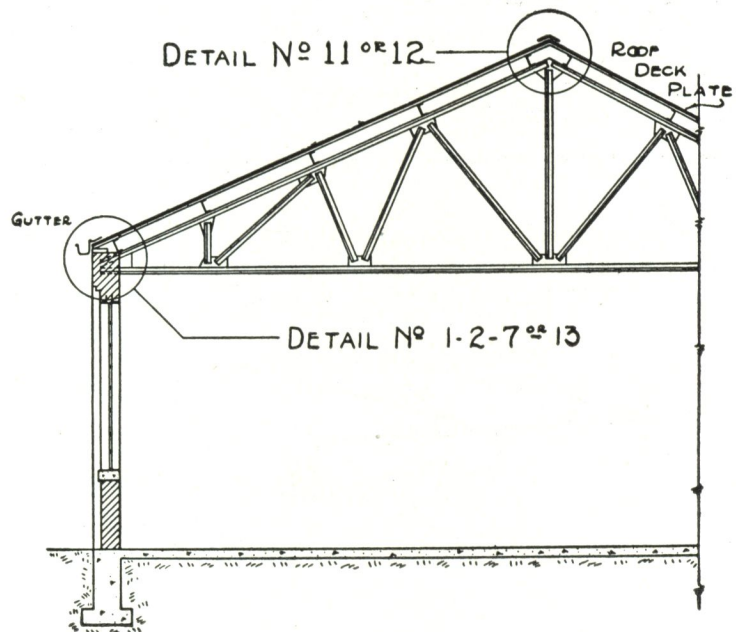
Intermediate Clip No. 2
For locking roof deck plates together
midway between purlins



Flashing Clip No. 3
For attaching flashing to roof deck
plates

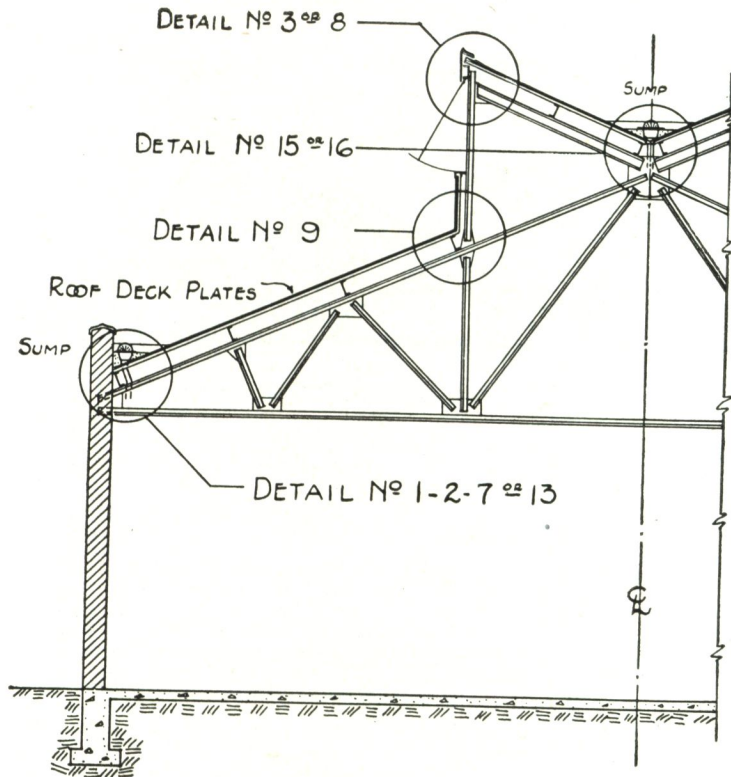
MAHON STEEL ROOF DECK

Application
Pitched Roof



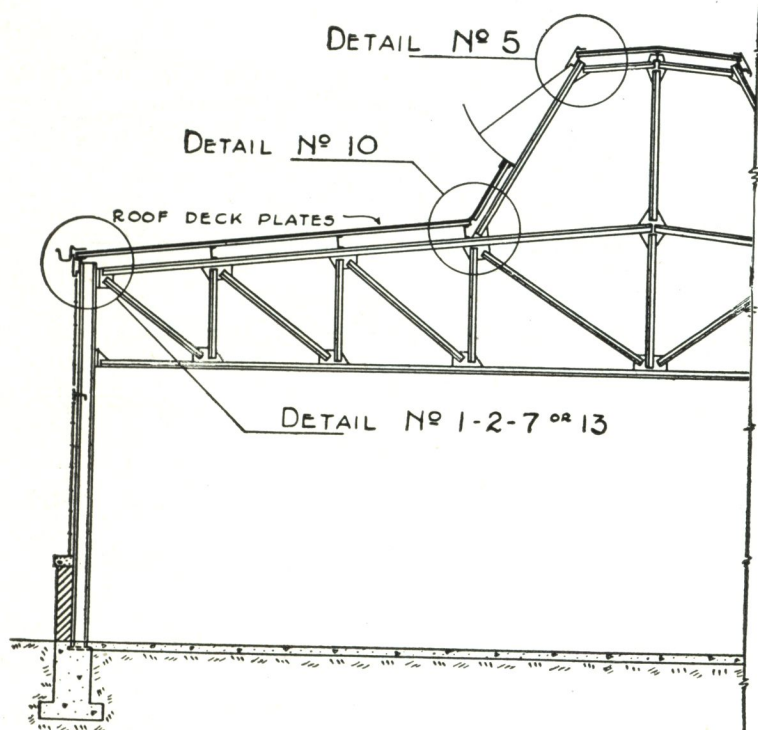
Application Pitched
Roof—Monitor

MAHON STEEL ROOF DECK



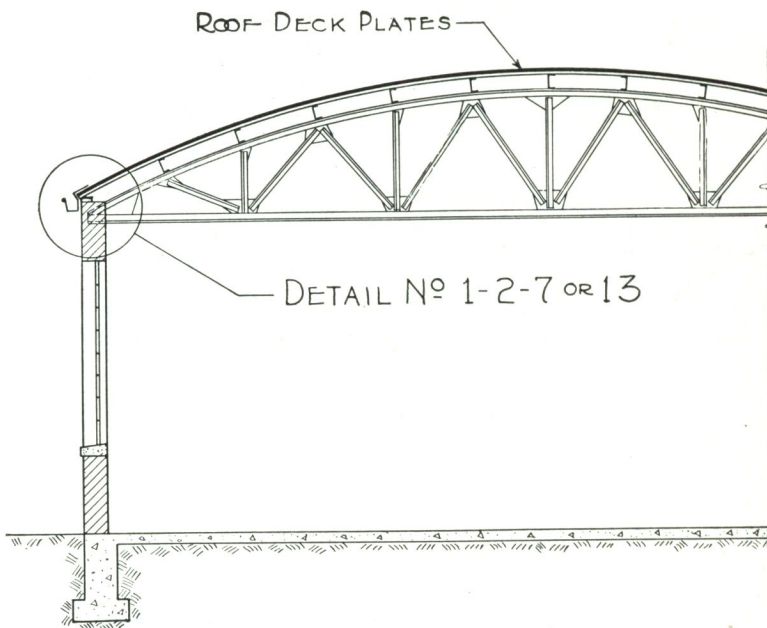
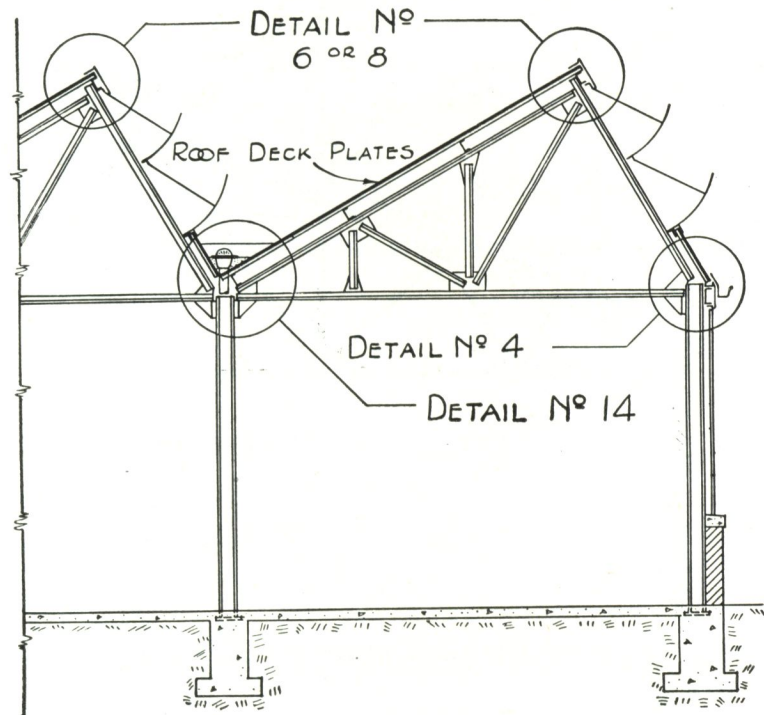
Application Pitched
Roof—Valley
Monitor

Application
Flat Roof—
"A" Frame



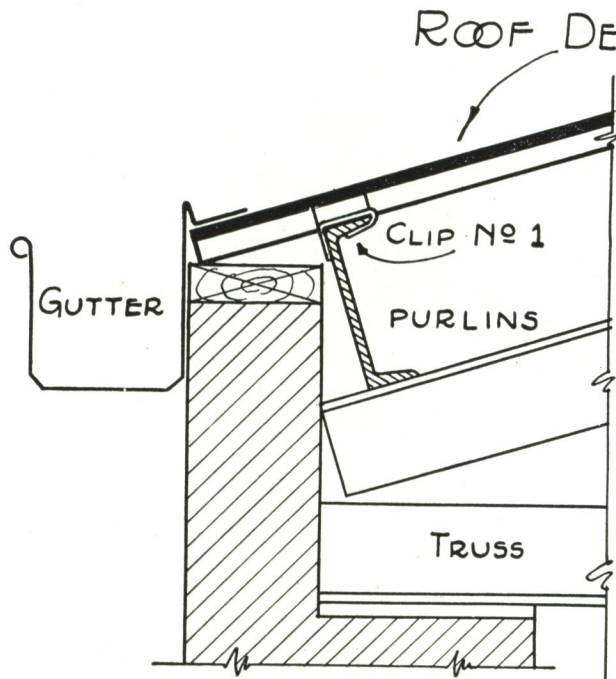
MAHON STEEL ROOF DECK

**Application
Typical Sawtooth**

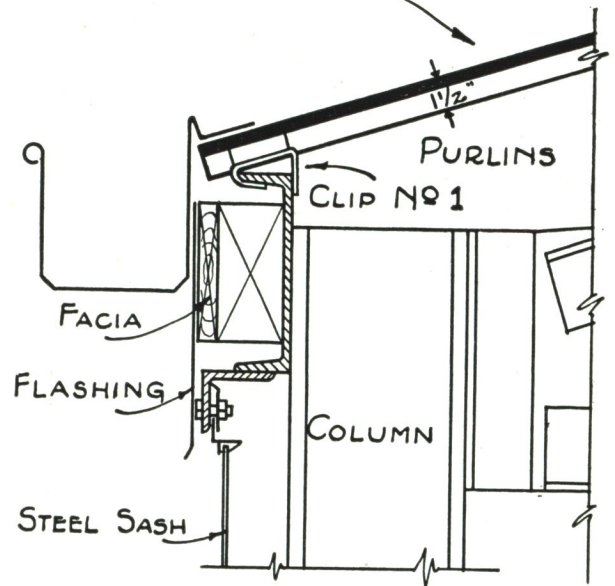


**Application
Mahon Curved
Roof Deck Plates
on Bow-String
Truss Roof**

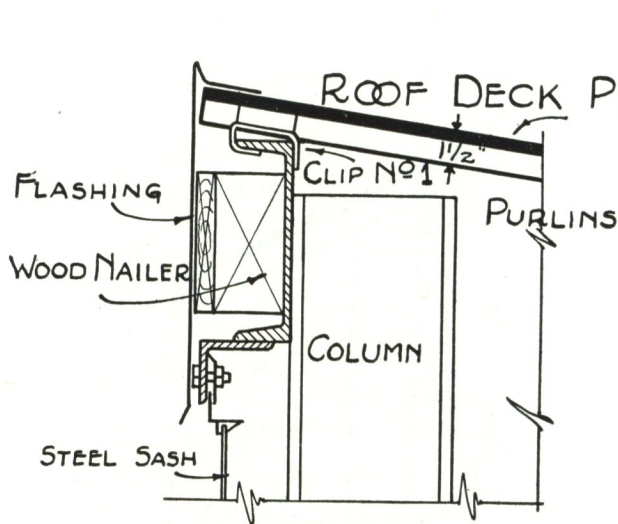
MAHON STEEL ROOF DECK



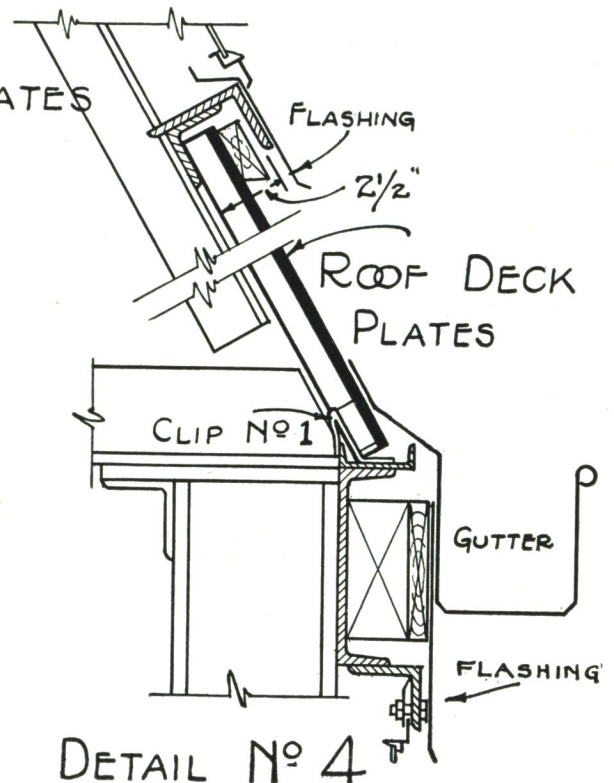
DETAIL N^o 1



DETAIL N^o 2

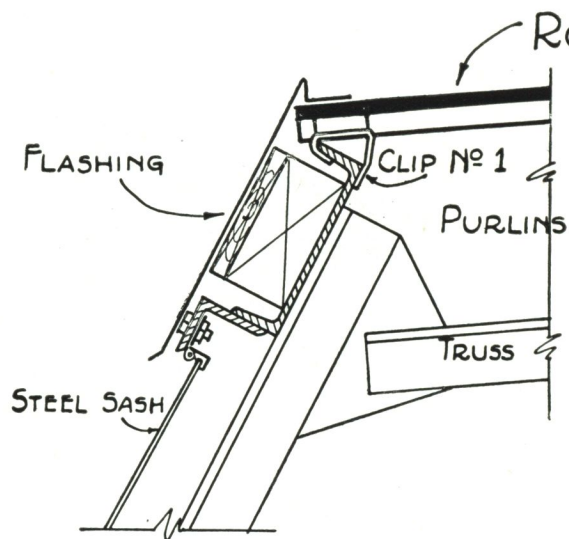


DETAIL N^o 3

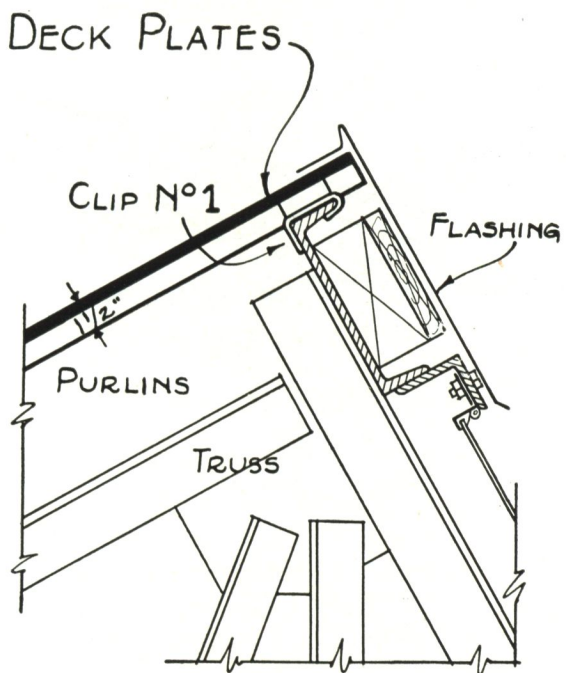


DETAIL N^o 4

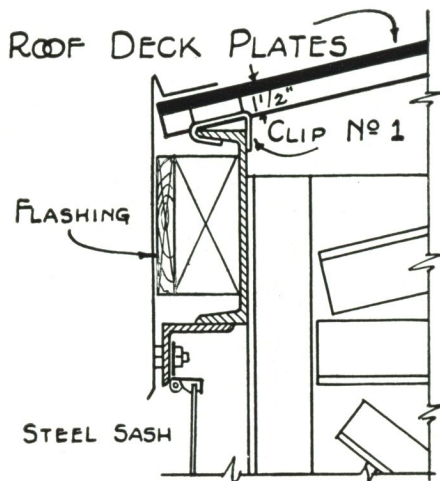
MAHON STEEL ROOF DECK



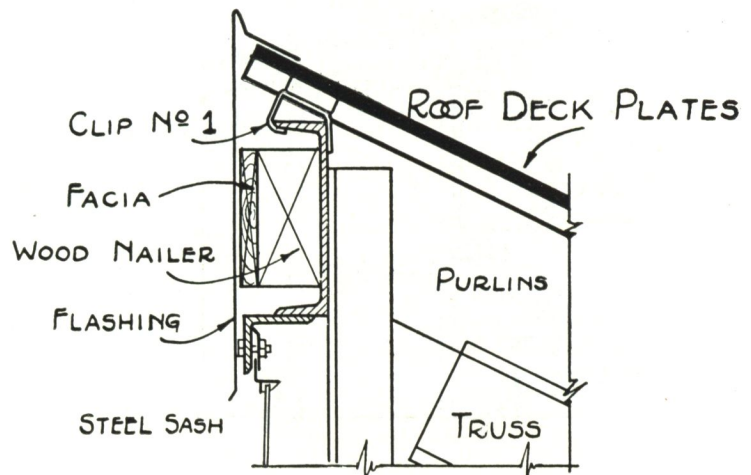
DETAIL N° 5



DETAIL N° 6

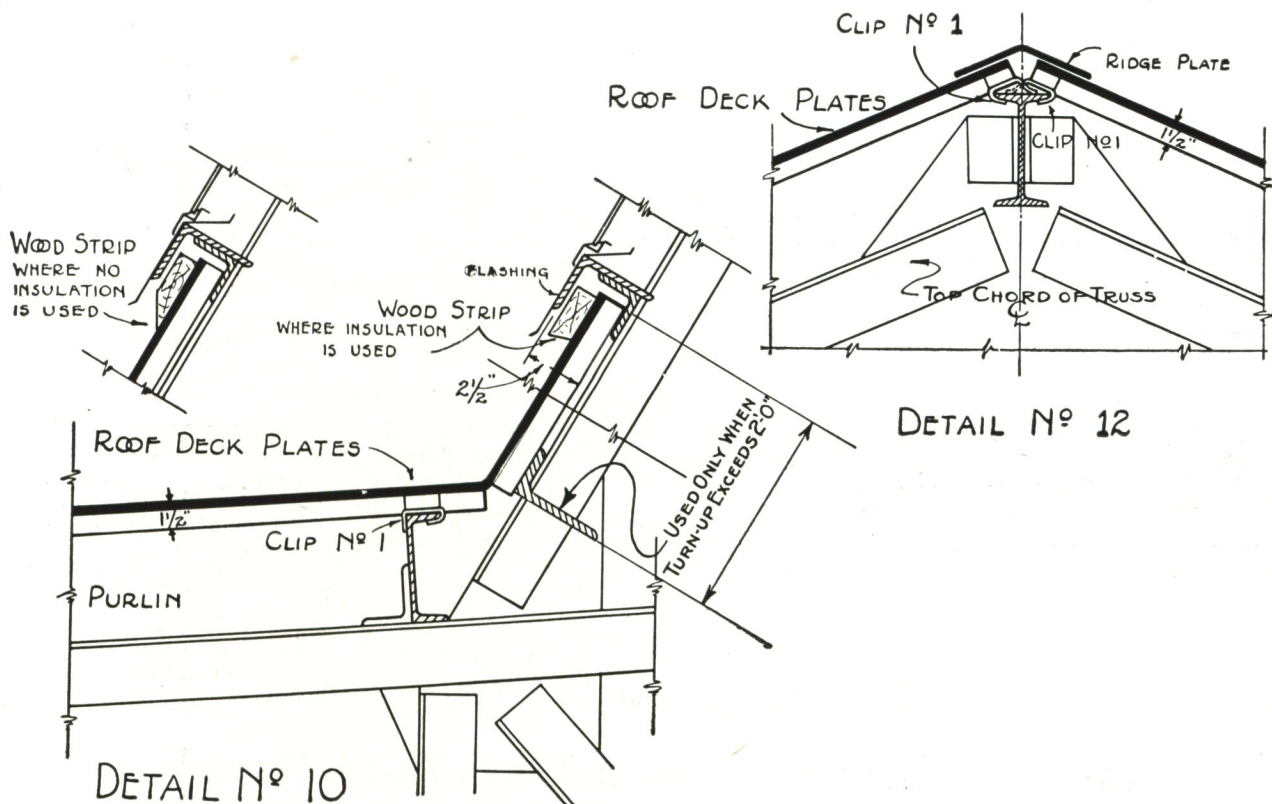
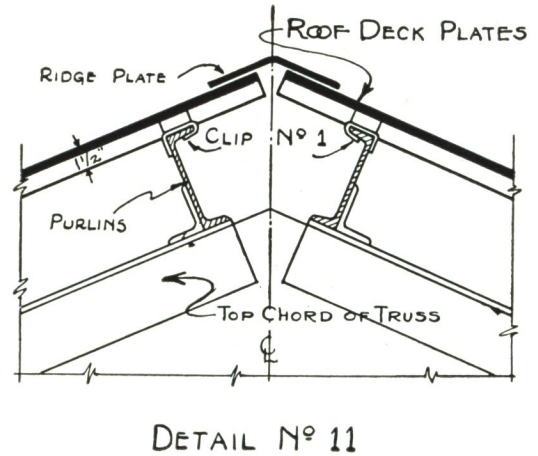
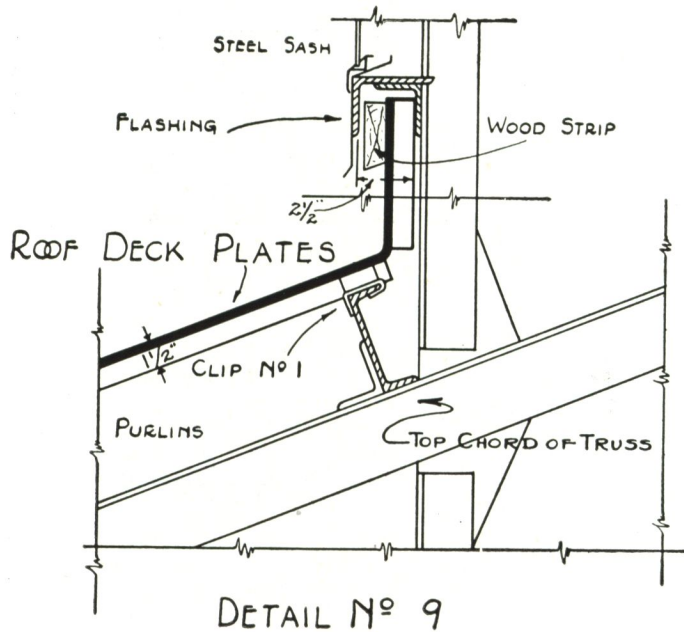


DETAIL N° 7

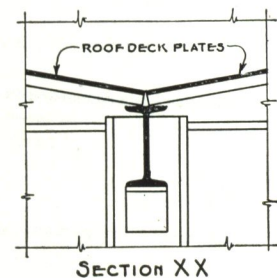
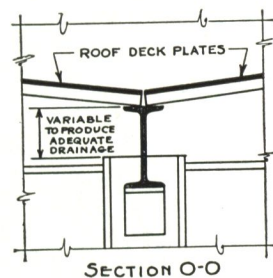
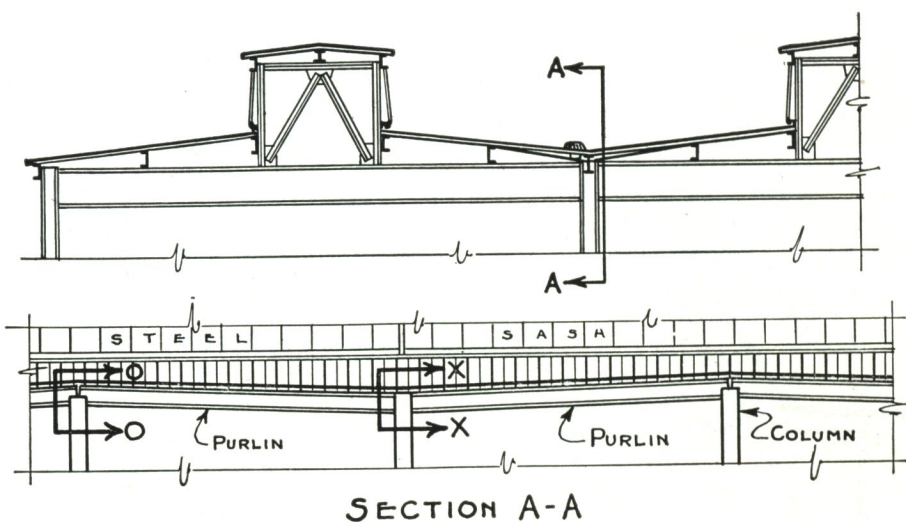
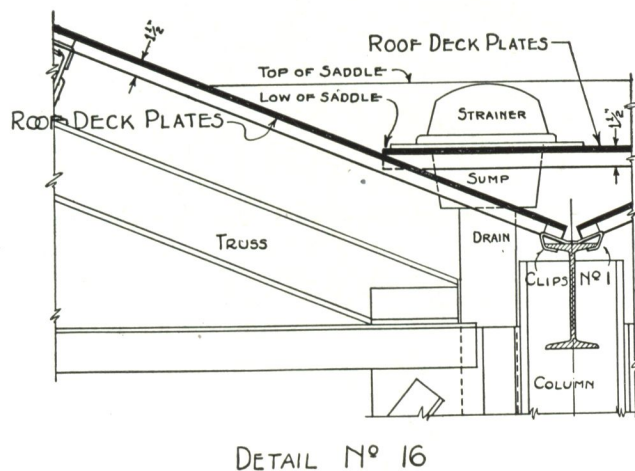
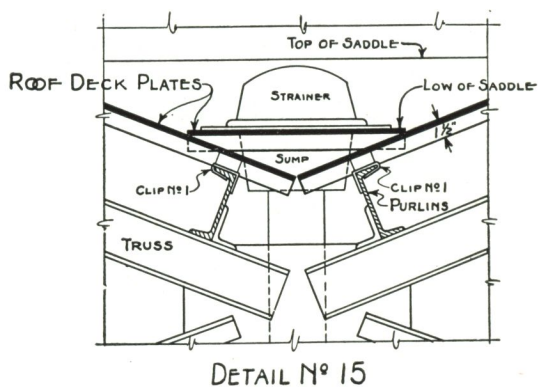
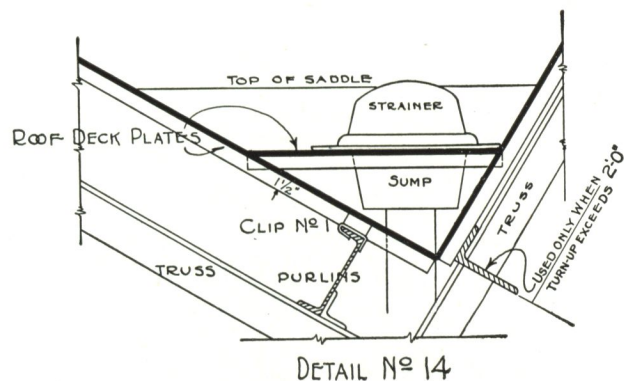
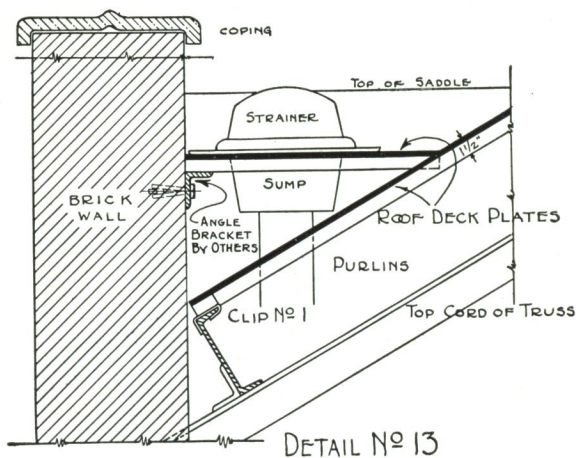


DETAIL N° 8

MAHON STEEL ROOF DECK



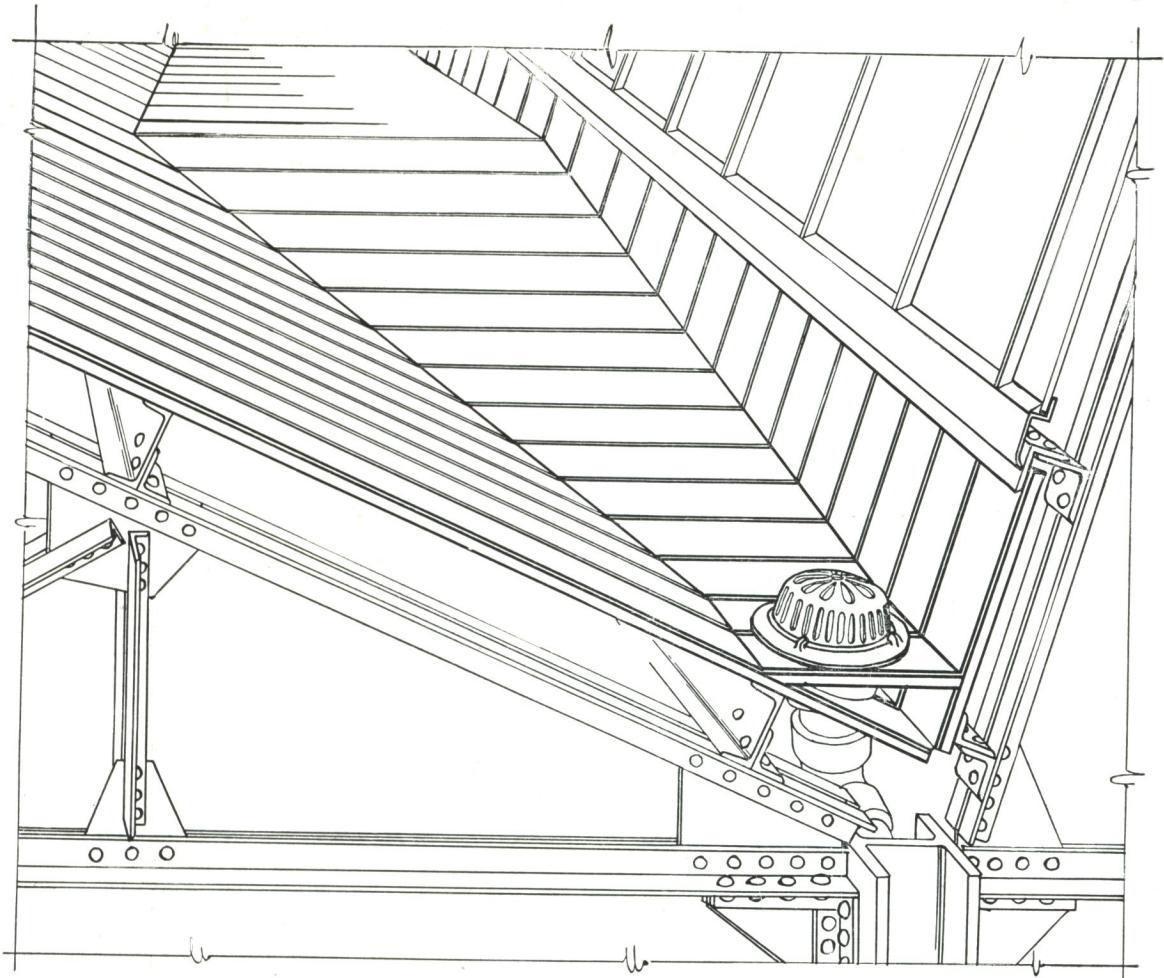
MAHON STEEL ROOF DECK



DETAIL N° 17

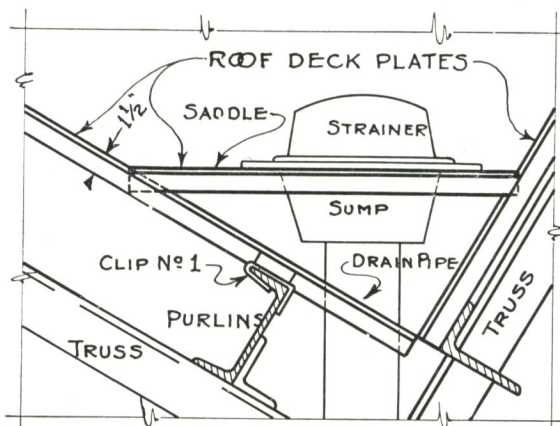
METHOD OF WARPING MAHON STEEL ROOF DECK TO FORM DRAINAGE VALLEYS

MAHON STEEL ROOF DECK



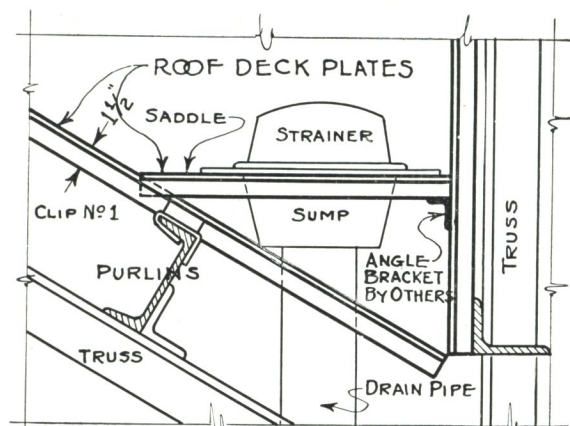
DETAIL No 18

METHOD OF BUILDING SADDLES IN SAW TOOTH CONSTRUCTION
WITH MAHON STEEL ROOF DECK PLATES CUT TO FIT



DETAIL No 19

WHERE BOTH FACES OF SAW
TOOTH SLOPE INSTALL AS ABOVE

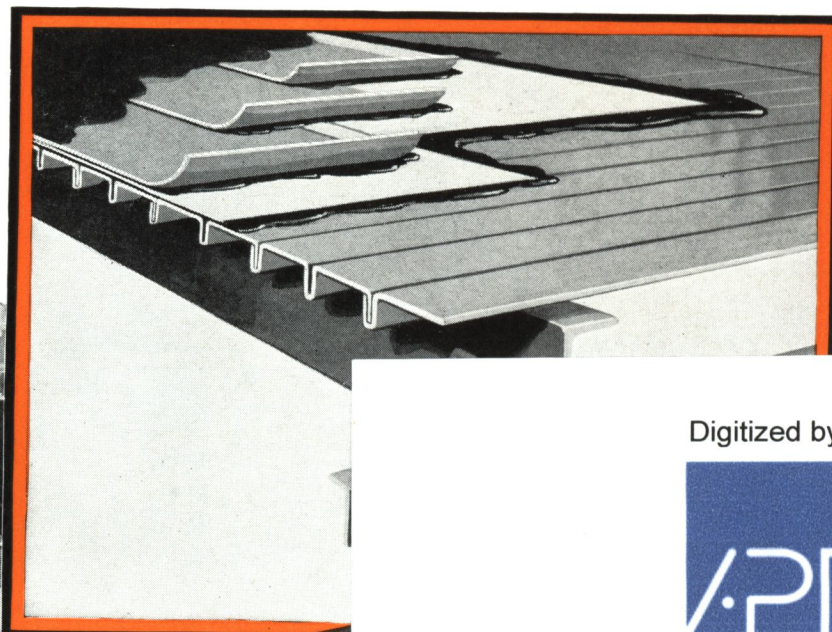


DETAIL No 20

FOR SAW TOOTH WITH VERTICAL
FACE ANGLE BRACKET IS USED

MAHON

STEEL ROOF DECK



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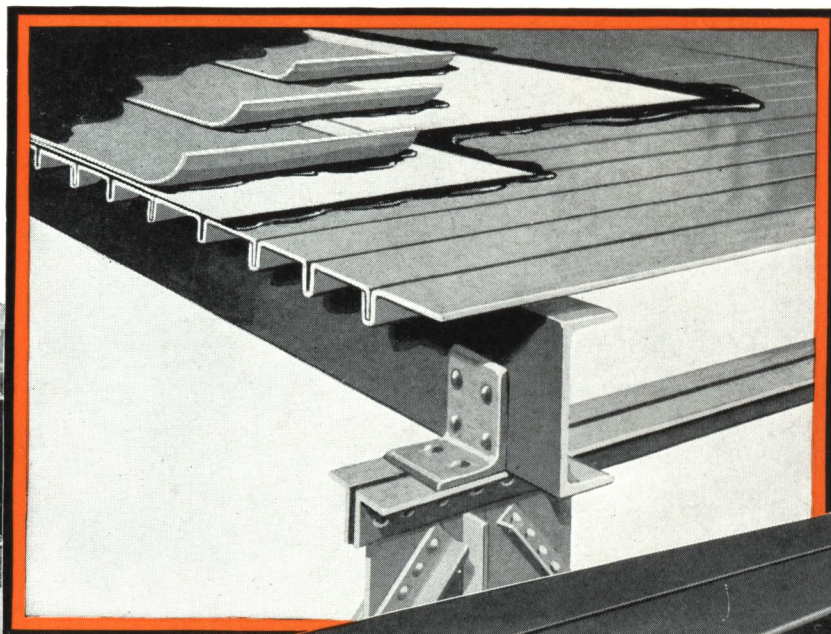
<https://archive.org/details/buildingtechnologyheritagelibrary>

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MAHON

STEEL ROOF DECK



THE R. C. MAHON COMPANY
DETROIT, MICHIGAN

